UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/789,547	02/26/2004	Michel Sayag	SAY1P004D1	9483

22434 7590 11/16/2004

BEYER WEAVER & THOMAS LLP
P.O. BOX 778
BERKELEY, CA 94704-0778

EXAMINER	
LEE, SHUN K	

ART UNIT	PAPER NUMBER
2878	

DATE MAILED: 11/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/789,547	SAYAG, MICHEL	
	Examiner	Art Unit	
	Shun Lee	2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 June 2004 and 09 August 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 February 2004 and 09 August 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *0604,0804*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed on 3 June 2004 does not fully comply with the requirements of 37 CFR 1.98 because: a copy of any patent, publication, pending U.S. application or other information, as specified in paragraph (a) of this section, listed in an information disclosure statement is required to be provided, even if the patent, publication, pending U.S. application or other information was previously submitted to, or cited by, the Office in an earlier application, unless the information disclosure statement submitted in the earlier application complies with paragraphs (a) through (c) of 37 CFR 1.98. As indicated in the parent application, some of the information submitted were not considered because of noncompliance with 37 CFR 1.98. In order to ensure consideration of information previously submitted, but not considered, in a parent application, applicant must resubmit the information in the continuing application in compliance with 37 CFR 1.97 and 37 CFR 1.98. Since the submission appears to be *bona fide*, applicant is given **ONE (1) MONTH** from the date of this notice to supply the above mentioned omissions or corrections in the information disclosure statement. NO EXTENSION OF THIS TIME LIMIT MAY BE GRANTED UNDER EITHER 37 CFR 1.136(a) OR (b). Failure to timely comply with this notice will result in the above mentioned information disclosure statement being placed in the application file with the noncomplying information **not** being considered. See 37 CFR 1.97(i).

Drawings

2. The drawings were received on 9 August 2004. These drawings are acceptable.

Specification

3. The disclosure is objected to because of the following informalities:

(a) in the paragraph beginning at pg. 1, line 8, "Application No. 09/887,543" should probably be -- Application No. 09/887,543, now Patent No. 6,800,870-- (*i.e.*, status of nonprovisional parent applications should also be included; see MPEP § 201.11); and

(b) on pg. 22, "die" in line 13 should probably be --dye--.

Appropriate correction is required.

4. The incorporation of essential material in the specification by reference to a foreign application or patent, or to a publication is improper. Applicant is required to amend the disclosure to include the material incorporated by reference. The amendment must be accompanied by an affidavit or declaration executed by the applicant, or a practitioner representing the applicant, stating that the amendatory material consists of the same material incorporated by reference in the referencing application. See *In re Hawkins*, 486 F.2d 569, 179 USPQ 157 (CCPA 1973); *In re Hawkins*, 486 F.2d 579, 179 USPQ 163 (CCPA 1973); and *In re Hawkins*, 486 F.2d 577, 179 USPQ 167 (CCPA 1973).

5. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is

requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 1-22 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Amended independent claim 1 recites the limitation "the form factor corresponding to a thickness of the cassette enclosure which is less than about 15 mm" was not described in the specification as filed.

The specification states (pg. 19, lines 22-25) that "According to various embodiments, the present invention includes implementations integrated into any standard size radiography cassettes as defined by international standard IEC 60406, the entire disclosure of which is incorporated herein by reference for all purposes". It should be noted that the incorporation of essential material (*e.g.*, antecedent basis for newly claimed material) in the specification by reference to a foreign application or patent, or to a publication is improper. In addition, this passage fails to specify which issue of the international standard IEC 60406 is being referred to (since the international standard IEC 60406 is constantly being revised).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 1, 9, 11, 12, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mueller *et al.* (WO 99/28765 with corresponding US 6,373,074) in view of Alvarez (US 5,221,843) and the third edition (1997-02) of IEC 60406.

In regard to claim **1**, Mueller *et al.* disclose (Figs. 1 and 7) an integrated x-ray image capture and readout system, comprising:

(a) a cassette enclosure (70) having a form factor;

(b) a storage-phosphor plate (15) operable to capture incident x-rays corresponding to an image;

(c) a stimulating light source (11) operable to expose a surface of the storage-phosphor plate (15) to stimulating light;

(d) an array of detectors (12) positioned to receive stimulated light via the surface of the storage-phosphor plate (15), the stimulated light being released from the storage-phosphor plate (15) in response to the stimulating light; and

(e) an actuator assembly (71, 72, 73) operable to effect relative motion between the surface of the storage-phosphor plate (15) and each of the stimulating light source (11) and the array of detectors (12) in one dimension (A);

wherein the storage-phosphor plate (15), the stimulating light source (11), the array of detectors (12), and the actuator assembly (71, 72, 73) are enclosed in the cassette enclosure (70).

The system of Mueller *et al.* lacks an explicit description that the cassette enclosure form factor corresponding to a standard radiographic film cassettes, the form factor corresponding to a thickness of the cassette enclosure which is less than about 15 mm. However, Mueller *et al.* also disclose (US 6,373,074 column 10, lines 55-57) that the x-ray cassette can be manufactured with very small dimensions such as a 45 mm x-ray cassette insertable in conventional x-ray units already in operation. Further, conventional x-ray units already in operation are well known in the art. For example, Alvarez teach (column 2, lines 32-40) that nearly all medical equipment is designed for film cassettes (*i.e.*, standard radiographic film cassettes) and that compatibility with these film cassette holder is highly desirable. Further, the third edition (1997-02) of IEC 60406 provides example of radiographic film cassette thickness of 15 mm, 16.5 mm, and 20.5 mm. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to provide a cassette enclosure form factor in the system of Mueller *et al.* corresponding to a standard radiographic film cassette form factor (*e.g.*, 15 mm thick), in order that the system is insertable in conventional x-ray units already in operation.

In regard to claim **9** which is dependent on claim 1, Mueller *et al.* also disclose (Figs. 1 and 7) that the actuator assembly (71, 72, 73) is disposed along an edge of the

cassette enclosure (70) to maximize an imaging area of the storage-phosphor plate (15).

In regard to claim **11** which is dependent on claim 1, Mueller *et al.* also disclose (Figs. 1 and 7) that the actuator assembly (71, 72, 73) comprises a magnetic linear motor (*i.e.*, comprising guide bars 71, 72 as reaction components for linear motor 73; US 6,373,074 column 10, lines 29-39).

In regard to claim **12** which is dependent on claim 1, Mueller *et al.* also disclose (Figs. 1 and 7) that the array of detectors (12) is operable to convert the stimulated light to electronic data corresponding to the image, the system further comprising a transmission medium (*i.e.*, interface ports; US 6,373,074 column 10, lines 49-51) for transmitting the electronic data out of the cassette enclosure (70).

In regard to claim **20** which is dependent on claim 1, Mueller *et al.* also disclose (Figs. 1 and 7) that the actuator assembly (71, 72, 73) comprises a magnetic linear motor (*i.e.*, comprising guide bars 71, 72 as reaction components for linear motor 73; US 6,373,074 column 10, lines 29-39) and the stimulating light source (11) and the array of detectors (12) are configured on a translation stage (10).

10. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mueller *et al.* (WO 99/28765 with corresponding US 6,373,074) in view of Alvarez (US 5,221,843) and the third edition (1997-02) of IEC 60406 as applied to claim 1 above, and further in view of Floresta *et al.* (US 6,239,516) and Budinski *et al.* (US 5,912,944).

In regard to claim **10** which is dependent on claim 1, while Mueller *et al.* also disclose (Figs. 1 and 7; US 6,373,074 column 10, lines 29-39) that the actuator assembly (71, 72, 73) comprises guide bars 71, 72 as reaction components for linear motor 73, the system of Mueller *et al.* lacks that at least a portion of the actuator assembly comprises a radiolucent material. However, linear motors are well known in the art. For example, Floresta *et al.* teach (column 2, line 47 to column 3, line 27) that a linear motor comprising resin epoxy have a number of advantageous such as enhanced performance. Further, Budinski *et al.* teach (column 3, line 63 to column 4, line 2) that cassettes are formed from epoxy since epoxy have very small x-ray attenuation. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to form the actuator assembly in the system of Mueller *et al.* with resin epoxy (which is inherently a radiolucent material), in order to obtain an enhanced linear motor performance.

11. Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mueller *et al.* (WO 99/28765 with corresponding US 6,373,074) in view of Alvarez (US 5,221,843) and the third edition (1997-02) of IEC 60406 as applied to claim 1 above, and further in view of Dewaele (US 5,757,021).

In regard to claims **13-15** which are dependent on claim 1, the system of Mueller *et al.* lacks a radio frequency detector for detecting radio frequency energy in close proximity to the cassette enclosure, the radio frequency energy corresponding to patient information to be associated with the image, and a radio frequency transmitter included in one of a wrist band and a badge disposed outside of the cassette enclosure

for generating the radio frequency energy. Dewaele teach (column 9, lines 20-63) a radio frequency detector for detecting radio frequency energy in close proximity to the cassette enclosure (*i.e.*, radio frequency tags on storage-phosphor cassettes), the radio frequency energy corresponding to patient information to be associated with the image (*i.e.*, radio frequency tags in one of a hospital bracelet or an identification card; column 11, lines 35-37), in order to associate the radiographic image with a patient (column 1, lines 37-38). Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to provide a hospital bracelet in the system of Mueller *et al.* for transmitting radio frequency energy (*i.e.*, patient information) to a radio frequency tag on the cassette, in order to associate the radiographic image with a patient.

12. Claims 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mueller *et al.* (WO 99/28765 with corresponding US 6,373,074) in view of Alvarez (US 5,221,843) and the third edition (1997-02) of IEC 60406 as applied to claim 1 above, and further in view of Karellas (US 5,864,146).

In regard to claims **16-19** which are dependent on claim 1, the system of Mueller *et al.* lacks an image capture detection circuitry comprising an x-ray detector (*e.g.*, a photodiode for detection prompt emission of the storage-phosphor plate) for detecting some of the incident x-rays and generating a signal indicative whether capture of the incident x-rays is occurring, and that the signal is employed to control actuation of the actuator assembly. Karellas teaches (column 36, line 60 to column 37, line 21) to detect prompt emission from a storage-phosphor plate in order to assess the level of x-

ray exposure in order to adjust the reading of the storage-phosphor plate. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to provide an image capture detection circuitry comprising an x-ray detector (*e.g.*, a photodiode for detection prompt emission of the storage-phosphor plate) in the system of Mueller *et al.*, in order to obtain a signal which is to adjust the storage-phosphor plate reading (*e.g.*, by controlling the actuation of the actuator assembly).

13. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mueller *et al.* (WO 99/28765 with corresponding US 6,373,074) in view of Alvarez (US 5,221,843) and the third edition (1997-02) of IEC 60406 as applied to claim 20 above, and further in view of Floresta *et al.* (US 6,239,516).

In regard to claim **21** which is dependent on claim 20, while Mueller *et al.* also disclose (Figs. 1 and 7) that the magnetic linear motor (*i.e.*, comprising guide bars 71, 72 as reaction components for linear motor 73; US 6,373,074 column 10, lines 29-39) comprises at least one guide bar (71, 72) disposed inside and along an edge of the cassette enclosure (70), and a linear motor actuator (73) coupled to the translation stage (10), the system of Mueller *et al.* lacks an explicit description that the guide bars (71, 72) comprise magnets. However, linear motors are well known in the art. For example, Floresta *et al.* teach (column 1, lines 7-63) it is known in the art that guide bars as reaction components for a linear motor comprise magnets. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention that the reaction components in the system of Mueller *et al.* comprise of magnets as is well known in the art.

14. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mueller *et al.* (WO 99/28765 with corresponding US 6,373,074) in view of Alvarez (US 5,221,843) and the third edition (1997-02) of IEC 60406 as applied to claim 1 above, and further in view of Applicant's Admitted Prior Art.

In regard to claim **22** which is dependent on claim 1, the system of Mueller *et al.* lacks that standard radiographic film cassette form factors have a set of dimensions corresponding to one of 14" X 17", 14" X 14", 10" X 12", 8" X 10", 35 cm X 43 cm, 35 cm X 35 cm, 20 cm X 40 cm, 18 cm X 43 cm, 13 cm X 18 cm, 13 cm X 30 cm, 18 cm X 24 cm, and 24 cm X 30 cm. Applicant admits (last paragraph on pg. 19) as Prior Art that standard radiographic film cassette form factors have a set of dimensions corresponding to one of 14" X 17", 14" X 14", 10" X 12", 8" X 10", 35 cm X 43 cm, 35 cm X 35 cm, 20 cm X 40 cm, 18 cm X 43 cm, 13 cm X 18 cm, 13 cm X 30 cm, 18 cm X 24 cm, and 24 cm X 30 cm. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to provide a cassette enclosure form factor in the system of Mueller *et al.* corresponding to a known standard radiographic film cassette form factor (*e.g.*, 35 cm X 35 cm), in order that the system is insertable in conventional x-ray units already in operation.

Response to Arguments

15. Applicant's arguments filed 9 August 2004 have been fully considered but they are not persuasive.

Applicant argues (remarks filed 9 August 2004) that Mueller *et al.* explicitly indicates that its lower limit on cassette thickness is at least three times the upper limit

of the preferred standard cassettes defined by IEC 60406 since the cassette thickness cannot be compressed below the stated limit due in large part to optical considerations (*i.e.*, the CCD and Selfoc lens system). Examiner respectfully disagrees. Mueller *et al.* state (US 6,373,074 column 10, lines 52-57) that "Due to the design subject to the invention of the device for reading out information stored in a phosphor carrier, the x-ray cassette can be manufactured with very small dimensions. It is possible to limit the thickness of the x-ray cassette to about 45 mm such that it can even be insertable in conventional x-ray units already in operation". Thus Mueller *et al.* teach that an ~45 mm thick x-ray cassette insertable in conventional x-ray units is possible because the x-ray cassette can be manufactured with very small dimensions. However, this is merely an example of the very small dimensions of the x-ray cassette and is not an express teaching of a lower limit of ~45 mm. Further in regard to the Selfoc lens system, Mueller *et al.* state (US 6,373,074 column 5, lines 12-14) that "A Selfoc lens can be provided for each stimulable point of the line of the phosphor plate 15, however, this is not required for the invention". Thus it is clear that the Selfoc lens is optional and not required for the invention. Therefore, applicant's argument that the cassette thickness cannot be manufactured with very small dimensions due to optical considerations such as the Selfoc lens is not persuasive since the Selfoc lens is optional.

Conclusion

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shun Lee whose telephone number is (571) 272-2439. The examiner can normally be reached on Tuesday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SL

DAVID PORTA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800